

REMARKS

Applicants thank the Examiner for the attention accorded the present Application in the August 24, 2004 Final Office Action, and the November 1, 2004 Advisory Action, in which claims 12-17 were pending. In the Final Office Action, claims 12-17 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention; and claims 12-17 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over O'Neill et al. in view of Shaw et al., Umezawa et al., Kolonko et al. and Tyrell et al. Applicants submitted a response to the Final Office Action on October 4, 2004, but the Examiner did not enter those amendments because the Examiner noted that "they raise new issues that would require further consideration and/or search ... [and] they raise the issue of new matter." Applicants are unclear as to what the Examiner considered to be "new matter" and request that the Examiner clarify this in the next correspondence to Applicants.

By the foregoing amendments, claims 12 and 14-17 have been amended to more clearly specify the present invention. No new matter has been added, no narrowing amendments have been made, and the amendments are fully supported throughout the specification, as more fully described below.

Claims 12-17 are now currently pending in this Application. Applicants respectfully submit that the rejections to claims 12-17 have been overcome. Therefore, reconsideration of this Application, and allowance of claims 12-17, is respectfully requested in view of the foregoing amendments and the following remarks.

35 USC § 112, second paragraph rejections

Claims 12-17 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Examiner noted that "[i]n claim 12, lines 2-4, a polymer and solids together do not constitute a rocket propellant, applicants' arguments notwithstanding. Thus, the

recitation is indefinite for implying something not stated, whereby the metes and bounds of the invention are not clear.” Applicants respectfully disagree with the Examiner’s conclusion and submit that claim 12 is definite. MPEP §2173.02 notes that “[d]efiniteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) The teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.” “The test for definiteness under 35 U.S.C. 112, second paragraph, is whether ‘those skilled in the art would understand what is claimed when the claim is read in light of the specification.’” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Circ. 1986) (as quoted in MPEP §2173.02). “Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim.” *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Circ. 1999) (as quoted in MPEP §2111.01(III)). Claim 12 has been amended to include the term “HTCE” in parenthesis after “hydroxy-terminated caprolactone ether”, as suggested by the Examiner. This amendment is supported by Applicants’ specification at page 2, lines 27-30 where it is noted that, “[t]he common element in all aspects of the present invention is the use of a hydroxy-terminated caprolactone ether (HTCE) polymer as a binder to hold the solid constituents of the propellant of the present invention together.” Applicants’ specification also explicitly defines the meaning of HTCE at page 3, lines 2-3 where it is noted that, “[f]or the purposes of this application, HTCE is a linear block co-polymer of caprolactone and tetramethylene ether.” Therefore, when claim 12 is read in light of Applicants’ specification, those skilled in the art would understand what is claimed. As such, Applicants respectfully submit that it is not necessary to further amend claim 12. Furthermore, MPEP §2111.03 notes that “[t]he transitional term ‘comprising’ ... is inclusive or open-ended and does not exclude additional, unrecited elements” “‘Comprising’ is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.” *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Circ. 1997) (as quoted in MPEP §2111.03). “‘Comprising’ leaves ‘the

claim open for the inclusion of unspecified ingredients even in major amounts.” *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) (as quoted in MPEP §2111.03). The binder and solids in Applicants propellant are the essential elements/ingredients in Applicants’ propellant, and both are listed in claim 12. The phrase “propellant that **comprises**” makes it clear that other elements/ingredients may also be added to Applicants’ propellant, even in major amounts, and still form a construct within the scope of claim 12. Therefore, Applicants respectfully submit that claim 12 is definite, the metes and bounds of the invention are clear, and no further amendment of claim 12 is necessary.

The Examiner also noted that “[i]n line 6, there is no antecedent basis for ‘poly(tetramethylene ether)’, lacking where ever found, as also in claim 14, line 2.” The first recitation of “poly(tetramethylene ether)” appears in claim 12, line 6. Therefore, Applicants respectfully submit that there is no antecedent basis problem with the term “poly(tetramethylene ether)” in claim 12. Furthermore, as claim 14 depends from claim 12, Applicants respectfully submit that the use of “**the** poly(tetramethylene ether)” in line 2 of claim 14 has proper antecedent basis, referring back to the first recitation of “poly(tetramethylene ether)” in claim 12.

The Examiner also noted that “[i]n claims 15-17, line 1, ‘compound is’ is inconsistent with the broad claim scope of ‘comprising.’” Applicants disagree with the Examiner’s conclusion and believe the claims, as written, are correct and comply with 35 U.S.C. §112, second paragraph. Regardless, claims 15-17 have been amended to state “compound comprises an” instead of “compound is”, thereby broadening the scope of these claims.

The Examiner also noted that “[i]n claims 15-17, there is no antecedent basis for ‘HTCE.’” Claim 12 has been amended to include the term “HTCE” in parenthesis after “hydroxy-terminated caprolactone ether”, as suggested by the Examiner. Therefore, as claims 15-17 depend from claim 12, Applicants submit that there is now proper antecedent basis for “HTCE” in claims 15-17.

Based on the above arguments and amendments, Applicants respectfully submit that claims 12-17 of the present invention are definite and particularly point out and

distinctly claim the subject matter that Applicants regard as the invention. Thus, Applicants respectfully request that the Examiner withdraw these rejections.

35 U.S.C. § 103(a) rejections

Claims 12-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over O'Neill et al. in view of Shaw et al., Kolonko et al., Umezawa et al. and Tyrell et al. Applicants respectfully disagree with the Examiner's conclusion and submit that the present invention is not obvious in view of, nor is it even suggested by, O'Neill et al., Shaw et al., Kolonko et al., Umezawa et al. and/or Tyrell et al.

As presently claimed in Applicants' independent claim 12, Applicants' invention comprises "[a] method of disposing of a solid rocket propellant, comprising the steps of: (a) contacting a propellant that comprises a hydroxy-terminated caprolactone ether (HTCE) binder and at least one or more solid compounds dispersed in the binder with a solution capable of hydrolyzing the binder to form hydrolyzed caprolactone and poly(tetramethylene ether)" ¹ As previously discussed above, Applicants' specification explicitly defines the HTCE binder as being a linear block co-polymer of caprolactone and tetramethylene ether.

O'Neill et al. is deficient as a reference against the present invention. O'Neill discloses "[e]xplosive compositions utilizing binders which are soluble in water or which hydrolyze under dilute acidic or basic conditions to yield non-toxic products."² O'Neill never teaches, suggests or mentions caprolactone or tetramethylene binders, nor the reaction byproducts: hydrolyzed caprolactone or poly(tetramethylene). Thus, O'Neill does not disclose, nor even suggest, a method utilizing the binder claimed by Applicants so as to produce the reaction byproducts claimed by Applicants.

Shaw et al. fails to cure the deficiencies of O'Neill. Shaw discloses "[a] method for safe, relatively air-pollution free disposal of pyrotechnic compositions."³ Shaw never teaches, suggests or mentions caprolactone or tetramethylene binders, nor the reaction byproducts: hydrolyzed caprolactone or poly(tetramethylene). Thus, Shaw does not

¹ Applicants' spec., independent claim 12.

² O'Neill, Abstract.

³ Shaw. Abstract.

disclose, nor even suggest, a method utilizing the binder claimed by Applicants so as to produce the reaction byproducts claimed by Applicants.

Kolonko et al. fails to cure the deficiencies of O'Neill and/or Shaw. Kolonko discloses utilizing poly(caprolactone) polymers of a variety of molecular weights as binders for solid propellants.⁴ Kolonko never teaches, suggests or mentions tetramethylene binders, nor the reaction byproducts: hydrolyzed caprolactone or poly(tetramethylene). Furthermore, Kolonko never mentions hydrolyzing anything. Thus, Kolonko does not disclose, nor even suggest, a method utilizing the binder claimed by Applicants so as to produce the reaction byproducts claimed by Applicants.

Furthermore, the fact that O'Neill, Shaw and Kolonko all broadly relate to polymeric materials is not sufficient to support the proposed combination or modification of O'Neill, Shaw and/or Kolonko suggested by the Examiner. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 680-82, 16 USPQ2d 1430, 1430-32 (Fed. Circ. 1990) (as quoted in MPEP §2143.01). "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Circ. 1984). There is no suggestion in any of O'Neill, Shaw or Kolonko to make the combination suggested by the Examiner, or to modify any of the reference as suggested by the Examiner. Furthermore, there is no teaching or suggestion in any of O'Neill, Shaw or Kolonko that one should use the binder claimed by Applicant to produce the reaction products claimed by Applicants. Therefore, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. As such, Applicants request that the rejections based on O'Neill, Shaw and/or Kolonko be withdrawn.

Umezawa et al. is non-analogous art and is therefore not a proper reference against Applicants' invention. Umezawa discloses a "meth[o]d for producing a soft sheet material containing thinned fibers or filaments and a viscoelastic substance."⁵ Applicants disclose "solid rocket propellant that can be disposed of with environmentally acceptable

⁴ Kolonko, Abstract.

⁵ Umezawa, Abstract.

techniques.”⁶ “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Circ. 1992) (as quoted in MPEP §2141.01(a)). Umezawa’s leather-like sheet materials are not in the field of Applicants’ rocket propellants, and Umezawa is not reasonably pertinent to the particular problem Applicants were concerned with (namely, environmentally acceptable methods of disposing of rocket propellants). Umezawa never mentions that the binders disclosed therein may be useful in rocket propellants. In fact, Umezawa never mentions anything about any type of propellant. Furthermore, those skilled in the art of rocket propellants would not look to leather-like sheet materials to solve the problem that Applicants solved. Therefore, Applicants respectfully request that the rejection based on Umezawa be withdrawn.

Tyrell et al. is also non-analogous art and is therefore not a proper reference against Applicants’ invention. Tyrell discloses “[n]ovel copolyetherester elastomer molding compositions [that] are prepared from diols, diacids, poly(alkylene ether) glycol and caprolactone or polycaprolactone.”⁷ Applicants disclose “solid rocket propellant that can be disposed of with environmentally acceptable techniques.”⁸ As previously noted above, a reference must either be in the field of applicant’s endeavor, or be reasonably pertinent to the particular problem with which the Applicants were concerned. Tyrell’s molding compositions are not in the field of Applicants’ rocket propellants, and Tyrell is not reasonably pertinent to the particular problem Applicants were concerned with (namely, environmentally acceptable methods of disposing of rocket propellants). Tyrell never mentions that molding compositions may be useful as rocket propellants. In fact, Tyrell never mentions anything about any type of propellant. Furthermore, those skilled in the art of rocket propellants would not look to molding compositions to solve the problem that Applicants solved. Therefore, Applicants respectfully request that the rejection based on Tyrell be withdrawn.

⁶ Applicants’ spec., pg. 2, lines 5-7.

⁷ Tyrell, Abstract.

⁸ Applicants’ spec., pg. 2, lines 5-7.

Based on the above arguments and amendments, Applicants respectfully submit that independent claim 12 of the present invention is patentably distinguished from O'Neill, Shaw, Kolonko, Umezawa and Tyrell. As claims 13-17 depend from claim 12, the discussion above applies to these claims as well. Further, these claims each include separate novel features. Thus, Applicants respectfully request that the Examiner withdraw these rejections.

CONCLUSION

Applicants respectfully submit that the amendments to the claims, together with the arguments presented above, successfully traverse the rejections given by the Examiner in the Final Office Action. For the above reasons, it is respectfully submitted that the pending claims patentably distinguish the present invention from the cited references. Allowance of pending claims 12-17 is therefore respectfully requested.

As this Request for Continued Examination is being timely filed within four (4) months of the mailing date of the Final Office Action (08/24/2004), Applicants believe that the only fees due are **\$790** for the filing of the RCE, and **\$120** for a 1-month extension of time (**\$910 total**). If this is incorrect, however, the Commissioner is authorized to charge any additional fees that may be due, or credit any overpayment, to **Deposit Account Number 21-0279, Order No. D-1460**.

Should the Examiner have any questions, or determine that any further action is necessary to place this Application into better form for allowance, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

Respectfully submitted,

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- Request for Continued Examination (PTO/SB/30) (2 pages)
- Fee Transmittal Sheet (PTO/SB/17) (1 page)
- Petition for 1 Month Extension of Time (PTO/SB/22) (2 pages)
- Request for Continued Examination Pursuant to 37 C.F.R. §1.114 (11 pages)
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Inventors: Marvin Luther JONES

Title: Solid Rocket Propellant

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I hereby certify that the documents identified above are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above, addressed to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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